STUDIO DECLARATIONS

1. We will work intensely and collaboratively.

2. Ideas must be valued and clearly represented.

3. High energy, open-mindedness and engagement with the wider world are prerequisites.

4. Constructive criticism and bold design responses constitute our communication.

5. Our creative palette includes the interconnection of complexity and simplicity, light and shadow, form and space, materiality and structure.
1. UNDER
- MERGE / SUBMERGE

2. IN
- THRESHOLDS, TRANSFORMATIONS, TRANSITIONS

3. ON
- TOPOGRAPHY, TYPOLOGY, MORPHOLOGY

4. ABOVE
- INTER-SECTION

5. BIKE DEPOT
- ROOF

6. SUBWAY ENTRANCE
- CUT, STAIR

7. PIER
- POINT, LINE, PLANE

8. BRIDGE
- A-SYMMETRY

9. OVERPASS / UNDERPASS
- FIGURE GROUND

10. PLATFORM

a. The Broken Kilometer, 3723 W Broadway
b. Four Freedoms Park, Roosevelt Is.
c. Cooper Hewitt: Heatherwick, 2 E 91st St
d. Guggenheim: Doris Salcedo, 1071 5th Ave
e. Abandoned Subway Station: City Hall, #6 train N
f. Anthology of Film Archives, 32 2nd Ave
g. Queens Museum: Moses Panorama, Flushing
h. Natural History Museum, Ctrl Park W & 79th
i. The Earth Room, 141 Wösster St
j. Bath House Studios, 540 E 11th St
k. Noguchi Museum, 9-01 33rd Rd, Queens
l. The Cloisters, 99 Margaret Corbin Dr
m. Dia Beacon, 3 Beekman St, Beacon, NY
n. Frederic Malle, SHA, 94 Greenwich Ave
o. The Whitney Museum, 99 Gansevoort St
p. NY Transit Museum, Grand Central
1. KINETIC
   - Gerald Bodziak

2. HINGE
   - Christoph a Kumpusch

3. PARTI
   - Tei Carpenter

4. FIGURE GROUND
   - Josh Uhl

5. MODULE
   - Erica Goetz

6. PROPORTION
   - Adam Frampton

7. TYPOLOGY
   - Karla Rothstein

8. COMPOSITION
   - NaHyun Hwang

9. TOPOGRAPHY
   - GSAPP Alumni 1

10. MORPHOLOGY
    - GSAPP Alumni 2

11. REPRESENTATION
    - GSAPP Alumni 3

12. HOW TO MAKE A BOOK
    - GSAPP Alumni 4
GENERAL READINGS

COMPOSITION

FORM
- Somol, R.E. “12 Reasons to Get Back into Shape.”

LANGUAGE
- Poe, Edgar Allan. The Purloined Letter. Charlottesville, Va.: University of Virginia Library.

MODEL
GENERAL READINGS

MODEL


MORPHOLOGY


PARTI


PROPORTION


REPRESENTATION


GENERAL READINGS

SYSTEMS


TIME


TYPOLOGY


  Kumpusch, Christoph a.. Detail Kultur: If Buildings had DNA: Case Studies of Mutations, 2013, New York.

  Mcleod, Mary. "Everyday and 'Other' Spaces." In Feminism and Architecture, 191. 1996.

  Taut, Bruno. "Down with Seriousism!" Frühlicht - Eine Folge für die Verwirklichung des neuen Baugedankens. Ullstein, Bauwelt Fundamente, Vol. 8
SAN ROCCO
Ghidoni, Matteo, ed. San Rocco 10: Ecology
Ghidoni, Matteo, ed. San Rocco 01: Islands

PAMPHLET ARCHITECTURE

DOMUS

THE ARCHITECTURAL REVIEW
The Architectural Review Issue 1395, May 2013

LOG
Kumpusch, Christoph a.. “The First and the Last.” Log 27, Spring 2013.

A+U

CASABELLA
Nele Città Italiene. Casabella 831.

EL CROQUIS

HYPERALLERGIC

ARCHINECT

PLAN
http://www.theplan.it/eng/magazine
The Plan 074, no. 05, 2014. [Stefan Behnisch, Busarchitektur, Zaha Hadid Architects, Atelier Hitoshi Abe, Crab Studio, Estudio Carme Pinos, No.Mad Arquitectos, Eduardo Arroyo,...]
The Plan 058, no. 05, 2012. [Beniamino Servino, Morphosis Thom Mayne, Herzog & De Meuron, Bernard Tschumi Architects, Vir.Mueller Architects, Architecitenbureau Koen Van Velsen,...]

DETAIL
Zimmermann, Astrid, ed. Constructing Landscape. Detail, 2011
MODEL MAKING FACT SHEET

MODEL TECHNIQUES

Wire / Metal rods / Metal sheets

SOLDERING
Copper solders the easiest, however steel wire, silver, gold, brass and aluminum (though aluminum may need a special type of solder).

References:
Gregor Holzinger http://www.donebymaking.net/
Lee Bul, Mon grand récit: Weep into stones, 2005
Lee Bul, Drifting Ashen Flake Opaque, 2008

TENSEGRITY
The word ‘tensegrity’ was invented by Buckminster Fuller to describe how the balance of tension and compression could be used to create a stable structure (in other words, a structure with integrity).

References:
Kenneth Snelson, X-Piece
Kenneth Snelson, The Needle Tower
Johannes Zabel under Moholy-Nagy at the Bauhaus, “a study in balance,” 1923
Robert le Ricolai, Automorphic Compression Member & Automorphic Tube Model
Robert le Ricolai, Double Parabolic Trihex Bridge for the Skyrail
Robert le Ricolai, Aleph Bridge
Karls Johansons, spatial construction, 1920
Nasa Landing Vehicle
Buckminster Fuller, Tensegrity Sphere

GLASS BLOWING
http://www.brooklynglass.com/products
https://www.urbanglass.org/classes

References:
El Ultimo Grito, Imaginary Architectures
Dale Chihuly, Mille Fiori, 2008

FOAM
Great for massing study models and quick experiments. Also useful to make blue (or purple) foam molds for rockite or other pours. Make sure to use foam glue that will not erode the foam (although this may be desired!). It is easiest to cut foam with a foam cutter, but it is possible to use an exacto.
https://www.youtube.com/watch?v=fi3CAtpvJJs

ACETONE
Use this substance for image transfers onto a surface. It can also be used to “erode” foam models (a helpful tool in this case could be a syringe or device to control injection).

IMAGE TRANSFER
www.youtube.com/watch?v=-qBa5d0pN8Y

3D PRINTING
PLEASE SEE GSAPPS OUTPUT SHOP TUTORIALS

MILLING
PLEASE SEE GSAPPS FABRICATION SHOP TUTORIALS
http://www.arch.columbia.edu/resources/gsapp-resources/fabrication-shop/required-training

WOOD
Joint Taxonomy: There is no limit how two or more pieces of wood come together. Put an Idea behind this tectonic connection, conceptual and/or performance based.

References:
Marc Fornes / Theverymany, Echinoids 01
Doug and Mike Starn, Big Bambu
Raimund Abraham, Church on the Berlin Wall model
Peter Eisenman, City of Culture model
MATERIAL TECHNIQUES

> SPACKLE
Spackle can give you interesting texture when mixed with pigment and smeared like stucco onto a contour model. It can also be sanded after drying to achieve a more even, smooth texture.

RESIN
This material can be tricky to work with and is toxic, so make sure to pour in a vented space (not studio). It can be colored or left clear. You can also cast other materials into it with experimentation. Molds can be made out of plastic or silicone. This material can be beautifully lit once made because of its transparent quality.

casting tips
http://joemreform.com/casting-resin/

References:
Kevin Beasley, Strange Fruit @ The Guggenheim Museum
materials: Nike Air Jordan 1 shoes, resin, polyurethane foam, tube socks, shoelaces, rope, speakers, hypercardioid and contact microphones, amplifiers, patch cables, and effects processors
OMA, Paris Les Halles Model, 2003
Silicone Mold Making for Resin Casting
https://www.youtube.com/watch?v=9ukHq7oQock

WAX/ SOAP
These two materials are also translucent, but not as transparent as resin can be; they appear more cloudy, but also can capture and emit light. You can use a variety of materials to create a mold including: plaster, silicone are best, but almost anything that doesn’t melt can be used as a mold. Soap or wax can also be poured into the base of a model to represent water.

PLASTIC
Vacuum Mold
You can use various mold types for vacuum forming plastic including: foam, milled wood, cardboard, chipboard, etc. Be conscious of webbing that may occur depending upon tolerances and mold construction.
https://www.youtube.com/watch?v=UB58z8apTE
http://isites.harvard.edu/fs/docs/icb.topic907894.files/FormechVacuumGuide.pdf

Pigmented Plastic / Plastic Sheets
References:
Paweł Althamer, Judith, 2011
materials: Pigmented plastic, plaster, paint, and steel armature with wheels
Lebbeus Woods, Nine Reconstructed Boxes, 1999

PVC Foam Sheets

WELDING
Sheet Metal
www.youtube.com/watch?v=Bk-deP30A-k
http://www.mig-welding.co.uk/thin-metal.htm

Tubes / Pipes
tools: blow torch, weld,

CASTING
Rockite
The best mold material for pouring rockite is blue foam, but acrylic, foam core, wood and chipboard can also work depending upon the desired finish. An acrylic mold achieves a more “shiny” finish on the rockite. Mold release helps to more easily remove the cast shape.

Plaster
In order to pour plaster, you can use acrylic, foam or foam core, depending upon desired effect / texture.

*To minimize air bubbles, you may softly tap the mold in the beginning as it is drying.

Metal
https://www.youtube.com/watch?v=IYZOTi9zTv0

Suprastudio, Animated Casting, Robotic Technology
http://www.aud.ucla.edu/programs/m_arch_ii_degree_1/studios/2014_2015/lynn/?p=1212
CHIPBOARD / CARDBOARD
This brown pressed paper makes a great material for contour models as well as general massing of shapes and structures, thereby making it a staple for most models. It comes in multiple thicknesses and depending upon the manufacturer can be a warm gray to cardboard brown in color.
References:
Lebbeus Woods, Stars House

BRISTOL BOARD
Another type of pressed paper board, but this time its white as snow.

LIGHT
References:
James Turrell, Sky Space
Dan Flavin
Spencer Finch
Ivan Navarro, Homeless Lamp, the Juice Sucker, 2004–05

ACRYLIC
This material is easiest to laser cut, but can also be cut by hand using an acrylic cutter (available at Janoffs). It is easiest to assemble using acrylic glue, but also consider designing joints that eliminate the need for glue.
If laser cut, etching can be very effective to create depth within a model.
References:
Sou Fujimoto, Art Sketch, Architecture as Forest exhibit
Sou Fujimoto, Primitive Future House, 2001
Sou Fujimoto, Bus Stop model
OMA, Proposed addition to Whitney Museum in NY
Tom Leader Studio, Temporal Map of Rome, 15 acrylic layers, 1999

no materials are off limits..... EXPERIMENT !!!!

REFERENCES


SUPPLIES

ivial and paper, paint, brushes
Janoff's : 2870 Broadway
white board, paint, metal, piano wire, wood, foam core, cutting supplies
Compleat Sculptor : 90 Vandam St
plaster, resin, blackener, metal, rockite, blue foam, casting information, wax, clay
Canal Plastics : 345 Canal St
acrylic sheets, tubes, cubes, mylar, mirrored paper
Canal Rubber : 329 Canal St
rubber textures
Metalliferous : 34 West 46th Street, 3rd Floor
soldering / metal supplies
The Home Depot : 40 W 23rd St
tools, screws, nuts, bolts, lumber, rope, paint, screen
Space Surplus Metals : 325 Church St
Aluminum, Brass, Copper & Steel
McMaster-Carr Supply Company : 473 Ridge Rd
T&T Plastic Land : 315 Church Street
AJO Ace Home & Lumber Depot : 610 Columbus Ave
lumber
Metropolitan Lumber Midtown : 617 11th Avenue
tools, materials, open 7 days, delivery avail.
Prince Lumber Co. : 404 West 15th Street
Industrial Plastics : West Orange, NJ
Pearl River Mart : 477 Broadway
fabric, paper, boxes, random other materials...
University Hardwares : 2905 Broadway
rockite, paint, screws, nuts, bolts, tools, rope
LASER CUTTING:
Fabberz : 580 8th Avenue, 21R
laser cutting, materials available in shop
XEROGRAPHICS:
Village Copier : 1181 Amsterdam Ave
quick turn around printing, simple binding options
Columbia Copy Center : 2792 Broadway
The GSAPP modelLAB is conceived as a platform to explore and advance the role of physical models, prototypes and environments at the university and beyond. Its aim is to question the role of architectural scale models in the design process and to consider their relevance in contemporary discourse, counteracting a design methodology focused predominantly on digital representation.

Before the 1990s, physical models were the most effective way to represent space in three dimensions. As the design process has been increasingly out-sourced to the computer, architects draw and model less in physical space. The paperless studios at Columbia University GSAPP in the mid-90s were a radical departure from preconceived notions of architectural production. Trends towards increasingly digital production necessitate a redefinition of the current relevance and role of physical models in architecture.

Physical models form a parallel history of architecture, undergoing a number of shifts and cycles. While the Renaissance is widely regarded for the innovation of techniques in drawing – famously the invention of perspective – it was the physical model that was the predominant mode of notation at the time. Filippo Brunelleschi won the commission to construct the dome of the Cathedral of Florence in 1418 by presenting a competition model. Subsequent models were built throughout all phases of design and construction, testing structural properties and accommodating opinions and changes made by other architects, noblemen, construction workers and laymen.

Mario Carpo describes this design process as autographic– the architect as an artisanal maker, directly involved in construction working together with the craftsmen until completion of the building. The architect is immediately forced to consider material, weight, scale, and relationships through a physical composition. Carpo positions this authorial approach in contrast to the ‘allographic’– where the design process is broken down into a linear hierarchical process– the architect as a designer is removed from the building process, only creating drawings that will later be realized by somebody else. Based on Carpo’s definitions, autographic design seems to privilege the physical model, while the allographic is closely related to the abstraction of a drawing. Models are autographic because they allow for easy collaboration between multiple authors, as well as direct modification through them. They present a flexible yet precise environment, creating a level of sensitivity and freedom that simultaneously provides almost instantaneous feedback; a loop. They are the most effective way to communicate space to laymen not trained in reading technical drawings. Drawings on the other hand are allographic in their quality of being abstract and technical– they are better suited for construction when the author is not present as precise measurements can be taken from them. They allow for intellectual and removed authorship– producing a notational bottleneck, because the amount of information in a drawing is limited to the two-dimensional plane.

Olafur Eliasson sees models as an integral part of the design process when he writes, “Models have become co-producers of reality”, as they are not anymore simply “conceived as rationalized stations on the way to a perfect object.”. Whereas Models used to be a stage on the way to reality, Eliasson articulates a shift where models evolve into other models, all as part of reality, rather than a precursor to it.

The process of building and the manifestation of that endeavor foster an iterative evolution of three dimensional spatial conceptions. It forces the author to photograph, document, zoom in or out, and make decisions with regards to the ground among other complex considerations. The process exists in parallel yet simultaneously surgically connected to drawing; a negotiation between mediums that collaborate and speak to each other creating both tectonic and highly imaginative worlds.

The GSAPP modelLAB explores exactly this fertile nexus– the intersections, overlaps and also differences between physical and digital modeling, examining the role of models in all aspects of the design and construction process. Concrete aims are to foster a culture of exploration in representational techniques through the development of an appreciation for exceptional models through awards and competitions, while creating discussions and intense workshops that improve the school’s resources. Bridging the gap between digital and physical worlds, this forum does not intend to promote one without the other, but rather create a more critical dialogue between the two.

Architecture is a profession engaged in the creation of

the physical,
the prototype,
the model.
A. 3D MODELS

B. DETAIL

C. BUILDING ANATOMY

D. DIAGRAMS

E. WHOLE

OVERALL PROJECT INFORMATION

SPECIFIC LENSES / FOCAL POINTS

OVERALL / CONTEXTUAL / PHOTOGRAPHY

CONSTRUCTION SHOTS -> PHOTOGRAPHY

NEW DRAWINGS

NEW DRAWINGS 2

TAILORED MEDIA

PICTOGRAMS

3D MODELS

INFOGRAPHICS

SEQUENCE

DRAWINGS

ETYMOLOGY + DEFINITION

CONSTRUCTION

SITE

EXPANSION

REFLECTION

CORE I LOG BOOK

INTRODUCTION

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EXTENDED READINGS

Andres Jaque, Cosmo, PS1, 2015


Kepes, Gyorgy. Language of Vision (Chicago: Paul Theobald, 1944) EBOOK


REFERENCES

CONCEPTUAL

> Aldo Rossi, Teatro del Mundo, Venice, 1979

Aldo Rossi, Teatro del Mundo, Venice, 1979

Archigram, Walking City

Buckminster Fuller, Dymaxion Car

Fischli and Weiss, Equilibres photo series, 1984-1987

Fischill and Weiss, The Way Things Go

Laszlo-Moholy Nagy, Light Space Modulator

Dustin Yellin

Edward Muybridge, photograph series of motion

Étienne-Jules Marey, Seagull

Frank and Lily Gilbreth, motion studies (part of Taylorist scientific management studies)

Kevin Francis Gray, Kids on a Tomb

Kisho Kurokawa, Helix City, 1961

Kiyonori Kikutake, Marine City, 1959

Lebbeus Woods, Photon Kite

Liu Bolin, Camouflage

Louis Kahn, Point Counterpoint II

Oil platforms (AKA coast of Brazil where oil industry is booming)

Robert Gober, Untitled, Wax, cloth, wood, leather and human hair 1991, @The Whitney Museum, Floor 5

Robert Smithson, Floating Island, 1970

Desiree Palmen, camouflage art, old city suit / surveillance camera (Jerusalem 2006)

Wes Andersen, The Belafonte

The floating islands of Lake Titicaca, Bolivia, history of floating cities

The Vernon Bain Correctional Center (NYC Prison Barge floating in the East River)
REFERENCES

BODY EXTENSION

> Coop Himmelblau, The White Suit Project, The Cloud, Restless Sculpture

Haus Rucker, Yellow Heart / Oasis 7 / Flyhead

Kazimir Malevich, Dance of Forms

Meejin Yoon, Defensible Dress, 2001

Oskar Schlemmer, Triadic Ballet

Walter Pichler, Prototypes, 1967

MODEL MAKING

KINETIC SCULPTURE

> Andrew Smith, Kinetic Sculptures

Bjoern Schuelke, The Observer, Drone #7

Chuck Hoberman, Hypar

Constant Nieuwenhuys, Models for New Babylon

Hugh Broughton, The Halley VI Centre

Karl Normanton and Ian Laurance, Neon Cactus

Philip Beesley, Protocell Mesh, Hylozoic Ground

SLO Architecture, Harvest Dome 2.0

Smout Allen, Surface Tension

Tim Hawkinson, Uberorgan, 2000

Theo Jansen, Strandbeest
Studio Team:
SECT 001  TEI CARPENTER
SECT 002  CHRISTOPH a. KUMPUSCH
SECT 003  ADAM FRAMPTON
SECT 004  JOSH UHL
SECT 005  GERALD BODZIAK
SECT 006  ERICA GOETZ
SECT 007  KARLA ROTHSTEIN
SECT 008  NAHYUN HWANG

THEO JANSSEN, STRANDBEEST
WALTER PICHLER, PROTOTYPES, 1967
KAZIMIR MALEVICH, DANCE OF FORMS
ANDREW SMITH
COOP HIMMELBLAU, THE CLOUD
HAUS RUCKER, FLYHEAD
LASZLO-MOHOLY NADY, LIGHT SPACE MODULATOR
OSKAR SCHLEMMER, TRIADIC BALLET
KLINGERT DIVING MACHINE

ÉTIENNE-JULES MAREY, SEAGULL
WALTER PICHLER, PROTOTYPES, 1967
WES ANDERSON, THE BELAFONTE
LOUIS KAHN, POINT COUNTERPOINT II
ZAHAD HADID, UNIQUE CIRCLE YACHTS
DSV ALVIN
PHILIP BEASLEY, HYLOZOC GROUND
DESIRÉE PALMEN, CAMOUFLAGE
US NAVY, SMALL SUBMERSIBLE
FACT SHEET

BUOYANCY DETAILS

**buoy**

*bɔɪ/

*verb*

1. keep (someone or something) afloat.
   
   "the creatures could swim, both buoyed up and cooled by the water"

*noun*

1. an anchored float serving as a navigation mark, to show reefs or other hazards, or for mooring.

FISH LOCOMOTION

Vector forces exert on the plane, surface and volume of water by a motion which generates thrust, a force backwards in which propels the object forward. Fish swim by creating this force against its surrounding environment. Muscles, Tendons, Contraction and expansion allow for these propulsions;

- **Body propulsion**
- Anguilliform locomotion
- Sub-carangiform locomotion
- Carangiform locomotion
- Thunniform locomotion
- Ostraciiform locomotion
- Dynamic lift
- Oscillatory

*see MODEL MAKING FACT SHEET

LOCAL SUPPLIES

- Janoffs
- Artist and Craftsman Supplies
- Canal Plastics -
- Canal Rubber
- Canal Street
- Blick Art Supplies
- Home Depot
- Compleat Sculptor

112th + Broadway
125th + Adam Clayton Powel Blvd.
Canal Street / 14st - 1 Train
Canal Street / 14st - 1 Train
Canal Street / 14st - 1 Train
Manhattan
Manhattan
Houston Stop - 1 train
MAIDEN VOYAGE
MAIDEN VOYAGE

Studio Team:
SECT 001 TEI CARPENTER
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SECT 003 ADAM FRAMPTON
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SECT 005 GERALD BODZIAK
SECT 006 ERICA GOETZ
SECT 007 KARLA ROTHSTEIN
SECT 008 NAHYUN HWANG